



Vehicle restraint more passport-closely DEVICES

Description OF DE19626903

The invention concerns a support mechanism for the passengers of a motor vehicle, with a luftsack and this an assigned blowing up unit, who are accommodated at a mounting plate of a housing, which is pushed onto a cross beam arranged within the range of the instrument panel and there so held that the blown up luftsack points toward to the passenger.

Support mechanisms of this kind are admit (DE 39 37 377 A1). With the well-known design one used a support carrier for the steering element, running crosswise within the range of the instrument panel, to fasten the housing and/or the mounting plate for an air bag unit. That is there in such a way solved that the housing for the air bag unit surrounds the tubular steering element support carrier, and that inside the steering element supporting carrier a patronenfoermige blowing up unit sits, which the produced gas leads for blowing the luftsackes up by openings in the steering element supporting carrier to the luftsack.

There is also support systems admits (DE 39 08 713 A1), with which a luftsack withdraws from the range of the instrument panel in the case of an impact and presses by its energy a knee pad mechanically in the direction of the legs of the passenger. With these designs blocking the mechanically activated knee pad cannot be excluded surely, whereby also the impact of the gas bag was questioned.

The available invention is the basis the task to plan during a support mechanism of the kind initially specified a security for the knees of the passenger who functions reliably and contributes in such a way to the increase of passenger security.

For the solution of this task during a support mechanism of the kind initially specified it is planned that the housing exhibits assigned blowing up unit for the admission of the first luftsackes and this the further mounting plate for a further luftsack that the second mounting plate is arranged to the first mounting plate around an angle transferred, and that the angle is so stored so limited and the second mounting plate that the second luftsack in the blown up condition serves as support for the knees of the Fahrzeuginsassens.

In the case of an impact two air bags are released by this arrangement, which cannot obstruct themselves mutually, since they withdraw in different directions. The catching surface for the passenger is substantially increased and also a protection of the leg range is ensured.

In further training of the invention a common blowing up mechanism can be intended for both air bags, which - in actually well-known way - when a cartridge slid into a hollow cross beam can be trained. The cross beam must be provided then with openings, be located in connection with the mouthpieces of the air bags arranged in both mounting plates.

In addition, in further training of the invention both mounting plates its own blowing up mechanism each can be assigned, whereby the gas producers over attachment mechanisms in the mounting plates of the housing can be attached. It is possible in addition, that then each blowing up mechanism consists of a gas producer integrated within the range of the housing bordering on the mounting plates. In both cases the in such a way equipped housing a compact construction unit represents, which can be pushed and fixed in simple way onto the cross beam.

In further training of the invention the cross beam can exhibit tubing form, and which housings will provide with a continuous recess, whose interior dimension is adapted to the external dimension of the cross beam. The assembly procedure is then very simple. The housing can be pushed laterally sealed onto the cross beam. For this purpose the recess of the housing can be equipped with O-rings in further training of the invention, which are adapted to the external dimension of the cross beam, and which can be held housings by at least one clamping mechanism or in other way at the cross beam. For example also a gluing at the lateral edges would be possible.

The invention is represented and in the following is described on the basis remark examples in the design. Show:

Fig. 1 the schematic representation of a first execution form of the invention on parallel facing forward average put by the front range of the passenger compartment of a motor vehicle,

Fig. 2 the increased representation of a partial section by the Fig. 1 along the cut line II-II,

Fig. 3 the cut by the representation of the Fig. 2 along the cut line III-III,

Fig. 4 the schematic representation of a further execution form of the invention with housings for the arrangement of air bags, pushed onto a cross beam within the front range of the vehicle,

Fig. 5 the cut by the arrangement of the Fig. 4 along the cutting plane V-V,

Fig. 6 another variant of a housing for the accommodation mounting plates for gas producers and air bags, screwed on by air bags in accordance with the invention with, and

Fig. 7 a further variant also firmly in a housing for the accommodation of the air bags integrated gas producers.

In Fig. 1 is schematically the front range of the passenger compartment of a motor vehicle shown, which of the windshield (1), floor space (2) and the armature carrier (3) arranged between them are limited for which. The armature carrier (3) is among other things provided with a tubular cross beam (4), which can serve the steering column not shown for example also for the support. On this cross beam (3), the tubing form possesses, is a housing (5) postponed, which possesses the external dimensions of the cross beam (4) adapted recess (6) - with the remark example in the form of a drilling - and in the final ranges of this recess (6) with O-rings (7) is provided, which provide for a sealing of the recess (6) outward.

Fig. in all other respects it shows 2 that this housing (5) is held for the axle on the cross beam (4) either by lateral sticking seams (8) toward (9) of the cross beam (4), or axially by a clamping screw (10) set at a projection/lead.

The recess (6) is provided with several schematically suggested openings (11), those with openings (12) in the cross beam (4) aligning, whose interior takes up a gas-producing cartridge (13), with appropriate activation in the range within the O-rings the (7) compressed gas produced, which occurs by the openings (12 and 11) schachtfoermige mounting plates (14 and 15), in which in well-known way a folded up luftsack (16) in each case is arranged, that in the blown up condition the form (16 min) take-taking those schachtfoermigen mounting plates (14 and 15) is to each other transferred in each case thereby with its centre planes around approximately 900 DEG, and the upper mounting plate (14) flows in such a way in the range of the armature carrier (3), that the assigned luftsack (16) withdraws into the range behind the windshield (1) and before the head and chest range here of the not represented Fahrzeuginsassens. The lower, pit-like mounting plate (15) flows in the lower range of the armature carrier (3) in such a way that the luftsack (16a), withdrawing from it after an appropriate release, sets itself on the knee range (17) of the Fahrzeuginsassens. In the case of an activation of the cartridge (13), which in well-known way by a conduction led by the cross beam (4) (18) be made can, therefore from only one gas generator both air bags (16 and 16a) are blown up and take over the protection Fahrzeuginsassens. Dabei remains the assembly of the in such a way implemented safety device relatively simply, because only one housing (5) is to be accordingly arranged and fastened. A mutual handicap of the air bags (16 and 16a) does not occur.

Into the Fig. a modification of a support mechanism according to invention is shown 4 and 5, with which in addition, a housing (50) is pushed also to it arranged mounting plates (14 and 15) onto a cross beam (40), which runs in similar way - not represented - crosswise within an armature carrier (3). In contrast to the execution form of the Fig. 1 to 3 is the cross beam (40) when a profile cross beam trained, which possesses a continuous drilling (20), and which with slots (21) lengthwise-running outside is provided. The housing (50) is adapted to the cross-sectional dimensions of the cross beam (40) and intervenes with two projections/leads (22) in a part of these slots (21) and can in this way by actually well-known means both fixed in the oh direction of the cross beam (40), and laterally sealed will-will that housing (50) possesses at two of its sides the above-mentioned openings (11), by the soft cartridge held of one central in the drilling (20) produced gases the two air bags (16 and 16a) to occur to be able. The cross beam (40) is for this purpose in the range, in which after the assembly the openings (11) of the housing (50) are, provided with a recess (23) open after the two gas withdrawal sides, which is limited laterally however by front walls (24), so that a part of the housing (50) can be used still for lateral sealing. Into the Fig. for the sake of the

clarity the assigned and as gas generators serving cartridge is not shown 4 and 5. She is trained somewhat longer than the recess (23), so that they with their two ends in the drilling (20) are held for this execution form are it possible to attach the pit-like mounting plates (14 and 15) at the exteriors of the housing (50) so that the housing (50) with the pit-like mounting plates (14 and 15) is first multipart trained, but when a whole is installed.

The Fig. a further modification of the before described execution forms shows 6 in as much as here the housing (60), similarly as into the Fig. 1 to 3, is one-piece with the two pit-like mounting plates (14 and 15) trained. The housing (60) is likewise on a tubular cross beam (4) as in the execution form of the Fig. 1 to 3 held. Different it is here however that in each case an own gas generator (25 and/or. 26) is assigned to the luftsack (16) and/or the luftsack (16a). The gas generator (25) and the gas generator (26) are connected thereby by own attachment bars (27) by screws (28) with the housing (60). Here must be ensured that both gas generators (25 and 26) are activated at given time, whereby one can also remember here to possibly release that the luftsack (16a) for the knees assigned gas generator (26) somewhat time-delayed if that should be favourable.

The Fig. 7 finally shows a variant, with which the housing (70) is directly with recesses (29 and 30) provided in the range adjacent on the two mounting plates (14 and 15), in which a gas generator be integrated can. Openings (31) lead in each case from the external wall of the recesses (29 and 30) into the range of the mounting plates (14 and 15), where the air bags (16 and 16a) are held in the folded up condition.

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Claims OF **DE19626903**

1. Support mechanism for the passengers of a motor vehicle, with a luftsack and this an assigned blowing up unit, who are accommodated at a mounting plate of a housing, which on a cross beam arranged within the range of the instrument panel (3) (4, 40) postponed and there so held is that the blown up luftsack (16 min) points toward to the passenger, by the fact characterized that the housing (5, 50, 60, 70) exhibits a further mounting plate (15) for a further luftsack (16a) that this second mounting plate (15) is arranged around an angle transferred to the first mounting plate (14), and that the angle to measure in such a way and the second mounting plate (15) is so put, that the second luftsack (16a) in the blown up condition serves (17) of the Fahrzeuginsassens as support for the knees.
2. Rueckhalteeinrichtung according to requirement 1, by the fact characterized that for both air bags (16, 16a) a common blowing up mechanism (13) is intended.
3. Support mechanism according to requirement 2, by the fact characterized that the cross beam (4, 40) is hollow trained that the blowing up mechanism is trained as one into this pushed in cartridge (13), and that the cross beam (4, 40) is provided in the range of the cartridge (13) with openings (12), those in connection with the mouthpieces of the air bags (16, 16a), arranged in both mounting plates (14 and 15).
4. Support mechanism according to requirement 1, by the fact characterized that its own blowing up mechanism each (25, 26) is assigned to both mounting plates (14, 15).
5. Rueckhalteeinrichtung according to requirement 4, by the fact characterized that the blowing up mechanisms designed as gas producers (25, 26) over attachment mechanisms (27) are appropriate in the mounting plates (14 and 15) of the housing (60).
6. Support mechanism according to requirement 4, by the fact characterized that each blowing up mechanism consists integrated gas producer (29, 30) of one into the range of the housing (70) adjacent on the mounting plate (14, 15).
7. Support mechanism after one of the requirements 1 to 5, by the fact characterized that the cross beam (4, 40) exhibits tubing form that the housing (5, 50) is provided with a continuous recess, their interior dimension to the external dimension of the cross beam (4, 40) is adapted, and that the housing (5, 50) is pushed laterally sealed onto the cross beam (4, 40).
8. Support mechanism according to requirement 7, by the fact characterized that the recess (6) of the housing (5) is equipped with O-rings (7), which are adapted to the external dimension of the cross beam (4), and that the housing is secured (5) in axial direction on the cross beam (4).
9. Support mechanism according to requirement 8, by the fact characterized that the housing (5) is held with the help of a clamping mechanism (10) at the cross beam (4).
10. Support mechanism according to requirement 8, by the fact characterized that the housing is secured (5) by a sticking seam (8) at the cross beam (4).

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